BIOLOGY 1 1999 January - NECTA FORM FOUR

Solutions from: Maktaba by TETEA

By Yohana Lazaro

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i	ii	iii	iv	v	vi	vii	viii	ix	x
C	B	B	B	B	A	C	D	B	A

2.

i	ii	iii	iv	v	vi	vii	viii	ix	x
G	C	A	J	F	Q	P	L	T	M

3.(a)growth of roots and shoots.

(b) geotropism in roots is high because the auxin hormone concentration is high hence influences the roots to grow at high rate.

(c)Photolysis is a chemical process by which chemical bonds are broken as the result of transfer of light energy (direct photolysis) or radiant energy (indirect photolysis) to these bonds.

4. (a)

Organism	Kingdom	Phylum/division	Class
Earthworm	Animalia	Annelida	Clitellata
Crocodile	Animalia	Chordata	Reptiles
Duck	Animalia	Chordata	Aves
Pine	Plantae	Coniferophyta	Conifers
Bean	Plantae	Spermatophyta	Dicotyledoneae
Coconut	Plantae	Spermatophyta	Magnoliopsida
Fish	Animalia	Chordata	Actinopterygii

Tapeworm	Animalia	Flatworms	Cestode
Paramecia	Protoctista	Ciliophora	Ciliatea
Plasmodium	Protoctista	Apicomplexa	Aconoidasida

(b)Bacteria helps the nitrogen cycle along throughout many of the processes.

Explanation:

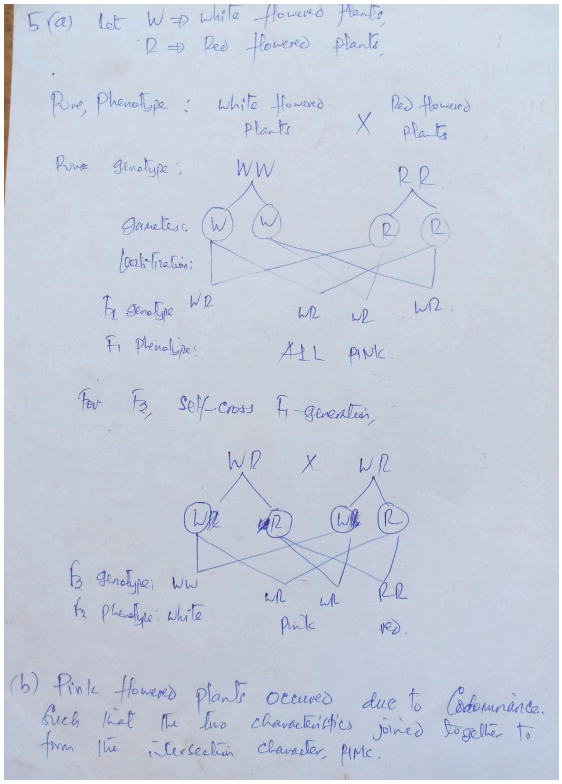
In the nitrogen fixation process, nitrogen fixing bacteria converts the nitrogen gas

in the atmosphere into ammonia. This bacteria binds hydrogen molecules with the gaseous nitrogen to form ammonia in the soil.

During assimilation, or when plants take up nitrates from the soil, bacteria aid in the process with the plants in making ammonia. Animal wastes is also a major place where bacteria thrives and produces ammonia. The process in which assimilation occurs in plants, and then bacteria converts the nitrates to ammonia is called ammonification.

From the conversion of ammonia to nitrites, bacteria also aids in this process called nitrification. The nitrifying bacteria mostly present in soils, oxidize ammonia into nitrites, and from nitrites to nitrates.

Finally, the process of denitrification also has bacteria present to aid in converting nitrates back into a gaseous form of nitrogen in the atmosphere.

5. 

5. (c)A epidermis, B epidermal hair, C xylem, D phloem, E pitch, F pericycle.

(ii) dicot shoot

6. (a)(i)-hepatic artery

-portal vein

(b)-hepatic artery has oxygenated blood, while portal vein has deoxygenated blood.

(c)(i) systematic blood circulation is the blood circulation from heart to all the body, while pulmonary circulation is the blood flow from heart to lungs.

(ii)-They are the circulatory fluids of the animal body, blood is a part of the circulatory system whereas lymph is part of the lymphatic system.

-Blood helps in carrying oxygen around the body to different parts and organs with the help of pigments, due to which they can be of different colors in different animals as the pigments are not always the same,Whereas lymph is a colorless liquid, found mostly in the inter-cellular spaces of a tissue.

7.(a)that as you get further and further away from primary consumers, less energy is transferred. Digesting and converting consumed food into usable energy is a pretty inefficient process. This means that as you get further from those organisms that make their own food in-house, less energy is available. This is why there is a cap to predators. Eating an apex predator like a shark or wolf would be

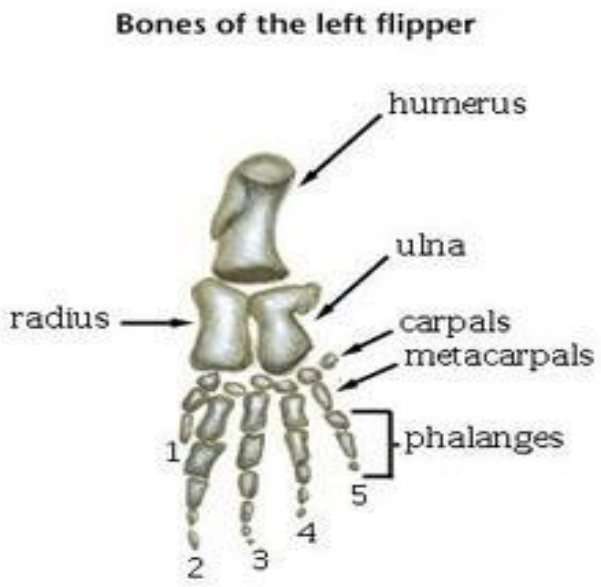
energetically inefficient. Only so much energy is available for use by the time you get to the top of the pyramid.

(b)monocultura is That is, one crop is grown in a certain area for a certain amount of time. while Crop rotation is the practice of growing a series of different types of crops in the same area across a sequence of growing seasons. It reduces reliance on one set of nutrients, pest and weed pressure, and the probability of developing resistant pest and weeds.

8. (a)The estrous cycle can be divided into four stages: proestrus, estrus, metestrus, and diestrus. During proestrus the CL regresses (progesterone declines) and a preovulatory follicle undergoes its final growth phase (estradiol increases). Ovulation usually occurs during estrus (cows ovulate during metestrus). Proestrus and estrus comprise the follicular phase. Corpora lutea develop during metestrus and function at optimum during diestrus. Metestrus and diestrus make up the luteal phase.

(b)Spermatogenesis leads to the formation of sperms, whereas oogenesis helps in the formation of ova. The fertilization of sperm and ova leads to the formation of a zygote which further develops into an embryo.

9.Mammalian pentadyctile limb diagram.



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10. (a) kwashiorkor occurs to children taking meal lacking proteins, while marasmus occurs when a child has meal lacking carolies.

(b)the food was having amonia, hence nature of the food is protein.

11.(a)balanced diet is a diet that contains differing kinds of foods in certain quantities and proportions so that the requirement for calories, proteins, minerals, vitamins and alternative nutrients is adequate and a small provision is reserved for additional nutrients to endure the short length of leanness.

(b)The components of a balanced diet

A balanced diet contains six key nutrient groups that are required in appropriate amounts for health. These groups are outlined below.

Proteins are involved in growth, repair and general maintenance of the body.

Carbohydrates are usually the main energy source for the body.

Lipids or fats are a rich source of energy, key components of cell membranes and signalling molecules, and as myelin they insulate neurons (nerve cells).

Vitamins are important in a range of biochemical reactions.

Minerals are important in maintaining ionic balances and many biochemical reactions.

Water is crucial to life. Metabolic reactions occur in an aqueous environment and water acts as a solvent for other molecules to dissolve in.

A deficiency of any one type of nutrient can lead to disease, starvation (or dehydration in the case of water) and subsequent death. Fibre is a component of food that is not nutritious but is important to include in our diet. Fibre or roughage is non-digestible carbohydrate and it has an important role in aiding the movement of food through the gut.

There is also an absolute requirement for some specific molecules in the diet. This is because, although the body can manufacture most of the molecules it needs, some essential molecules cannot be made by the body. These molecules are called essential nutrients, and must be supplied in the diet, for example lysine and methionine, which are essential amino acids.

-Factors leading to lack of balanced diety include age,price,natural calamities.

12.Organic manure are natura fertilizers formed due to feases given out by animals, like cows.

Roles of organic manure

-they increase the soil moisture

-they can be used for more than one season of cultivation

-they prevent the water loss on the soil as they cover it.

-they are cheapest and easy to handle.

- they provide shelter to the microorganisms.

13.Sexually transmitted diseases (STDs), or sexually transmitted infections (STIs), are infections that are passed from one person to another through sexual contact. The contact is usually vaginal, oral, and anal sex. But sometimes they can spread through other intimate physical contact. This is because some STDs, like herpes and HPV, are spread by skin-to-skin contact.

There are more than 20 types of STDs, including

Chlamydia

Genital herpes

Gonorrhea

HIV/AIDS

HPV

Pubic lice

Syphilis

Trichomoniasis

sexually transmitted diseases (STDs)

STDs can be caused by bacteria, viruses, and parasites.

Who is affected by sexually transmitted diseases (STDs)

Most STDs affect both men and women, but in many cases the health problems they cause can be more severe for women. If a pregnant woman has an STD, it can cause serious health problems for the baby.

symptoms of sexually transmitted diseases (STDs)

STDs don't always cause symptoms or may only cause mild symptoms. So it is possible to have an infection and not know it. But you can still pass it on to others.

If there are symptoms, they could include

-Unusual discharge from the penis or vagina

-Sores or warts on the genital area

-Painful or frequent urination

-Itching and redness in the genital area

-Blisters or sores in or around the mouth

-Abnormal vaginal odor

-Anal itching, soreness, or bleeding

-Abdominal painn

-Fever

sexually transmitted diseases (STDs) prevention

-Correct usage of latex condoms greatly reduces, but does not completely eliminate, the risk of catching or spreading STDs. If your or your partner is allergic to latex, you can use polyurethane condoms. The most reliable way to avoid infection is to not have anal, vaginal, or oral sex.